

<<非晶形半导体物理学PHYSICS OF>>

图书基本信息

书名：<<非晶形半导体物理学PHYSICS OF AMORPHOUS SEMICONDUCTORS>>

13位ISBN编号：9789810213817

10位ISBN编号：9810213816

出版时间：1999-12

出版时间：中国矿大出版社

作者：Morigaki, Kazuo

页数：418

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<非晶形半导体物理学PHYSICS OF>>

内容概要

This is a useful textbook for graduate students in the fields of solid state physics and chemistry as well as electronic engineering. Presenting the fundamentals of amorphous semiconductors clearly, it will be essential reading for young scientists intending to develop new preparation techniques for more ideal amorphous semiconductors e.g. a-Si:H, to fabricate stable and efficient solar cells and thin film transistors and new artificial amorphous materials such as multilayers for quantum devices. A large portion is devoted to the latest developments of amorphous semiconductors including electronic properties of a-Si:H, nature of weak bonds and gap states in a-Si:H, mechanisms for light-induced defect creation in a-Si:H and chalcogenides, and quantum phenomena in multilayer films.

书籍目录

Preface Acknowledgement 1 Introduction 2 Disorder and glass transition 2.1 Definition of disorder 2.2 Glass transition 2.3 Glass formation 3 Preparation 3.1 Rapid quenching from the liquid phase 3.2 Rapid condensation from the gas phase 3.2.1 Physical vapour deposition 3.2.2 Chemical vapour deposition 4 Structure 4.1 Diffraction pattern 4.2 Models for the amorphous structure 4.2.1 Tetrahedrally bonded semiconductors: a-Si and a-Ge 4.2.2 Chalcogenide glasses 4.3 Medium-range order of small-angle X-ray scattering 4.4 Computer simulation 4.4.1 Monte Carlo method 4.4.2 Molecular-dynamics method 5 Electronic states 5.1 Nature of conduction and valence bands and tail states 5.2 Anderson localization 6 Gap states and defects 6.1 Gap states 6.2 Measurements of defects 6.3 Dangling bonds in a-Si and a-Si:H 6.4 Defects in chalcogenide glasses 7 Transport 7.1 Electrical conduction near the mobility edge 7.2 The scaling theory of Anderson localization 7.3 Conductivity taking into account multiple scattering - deviation of conductivity from the Boltzmann conductivity 7.4 Transition from localization to delocalization and conductivity 7.5 Band conduction 7.6 Hopping conduction 7.6.1 Nearest-neighbor hopping 7.6.2 Variable-range hopping 7.7 AC conduction 7.8 Hall effect 7.9 Thermoelectric power 7.10 Relationship between the electrical conductivity and the thermoelectric power 7.11 Electron-phonon interaction and electrical conduction 1 7.12 Dispersive transport 8 Optical properties 8.1 Optical absorption 8.1.1 Band to band transition and absorption edge 8.1.2 High energy absorption 8.1.3 Tail absorption 9 Recombination 10 Electron-phonon interaction and self-trapping of carriers 11 Light-induced phenomena 12 Thermal equilibrium processes and defect formation mechanism 13 Artificial materials 14 Summary of specific materials References Index

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>